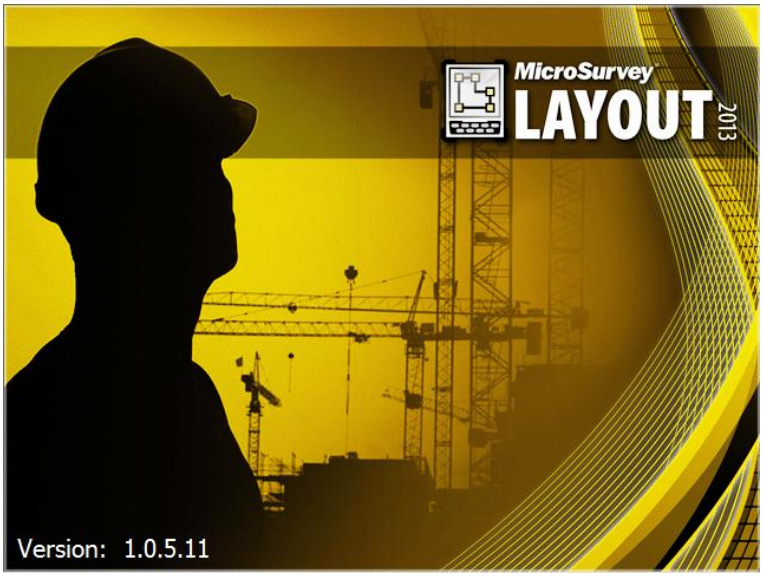
Creating an iCON 60 gps GNSS GSM Network Rover Profile and Connecting to a GNSS Network Data Correction Service Using

MicroSurvey Layout



June 26, 2013

Creating an iCON gps 60 GNSS GSM Network Rover Profile

Introduction

This guide describes how to create a GNSS GSM network rover profile for your iCON gps 60 GNSS receiver.

After creating this profile, you will be able to connect to your Internet GNSS data correction service, achieve a solution, and start measuring.

Important Note: You only need to create a particular profile once. After that Layout will preserve and use this already-created profile. You are also welcome to create more profiles such as for a UHF radio GNSS profile, but for this guide we explain how to create a GSM Network GNSS profile.

Current Version

This guide was written using Layout Version 1.0.5.11 installed on a Getac PS236 with Windows Mobile 6.1 installed. If you are using a different version, your screens may look differently than what is displayed in this guide.

Before you begin

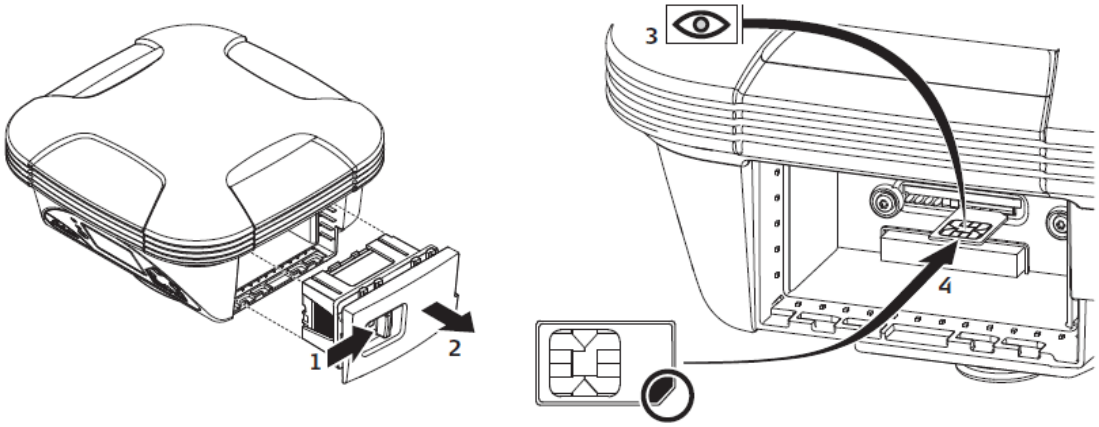
Have your iCON gps 60 receiver with a SIM card inserted, and your data collector with Layout installed nearby. You will need them to complete this guide.

Continued on the following page

Creating an iCON gps 60 GNSS GSM Network Rover Profile

Inserting SIM Card

To connect up to a GNSS data service, you will need to access the Internet. Your iCON gps 60 comes with an internal GSM phone modem and we will use that to connect to the Internet. You will need to acquire a SIM card from your local internet phone provider. The image below describes how to insert the SIM card into the receiver.



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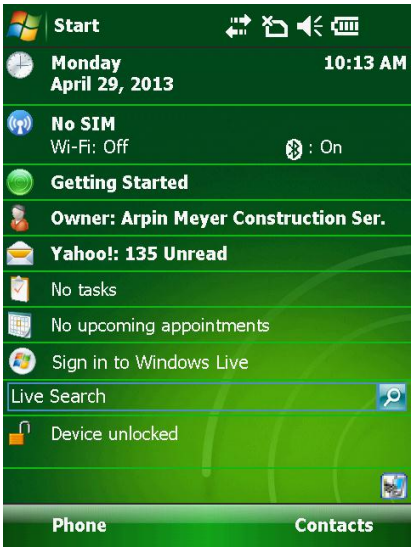
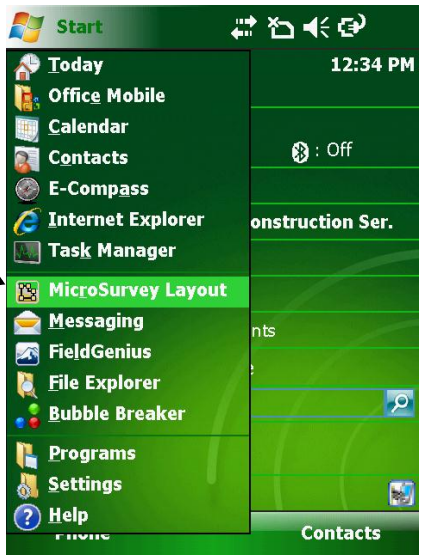
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
1	• Turn on your **Getac PS236**. This starts up the Windows Mobile 6.1 Operating system. **Note**: Don't be alarmed if your display is slightly different from the image on the right. We may have configured our display differently to yours. • Tap on the  button. From within the context menu: • Tap on the **MicroSurvey Layout** menu selection. **Note**: If you do not see Layout in your menu then you must use File Explorer to go to **Programs** and find the **MicroSurvey Layout** icon and tap on it. The next time you open this Start menu you will see Layout in the list. This takes you to the Device ID screen.	 

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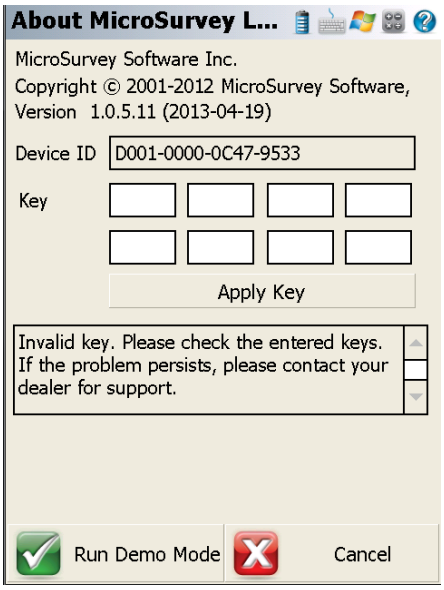
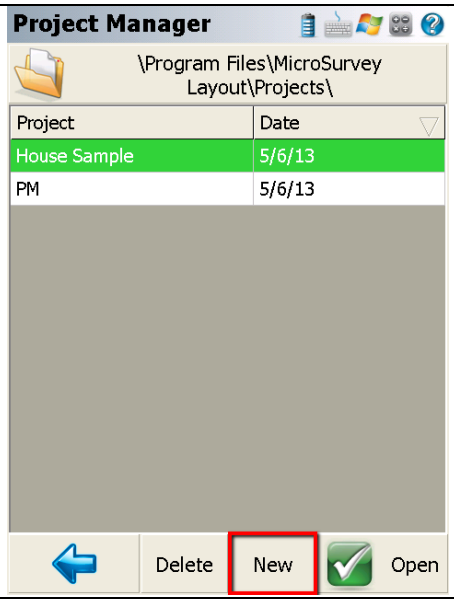
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
2	In the Device ID screen: • Enter your License Key in the **Key** field. • Press the **Apply Key** button when finished. **Important Note**: **Layout** Will remember your key, therefore, you will only have to enter your key once. Once a correct key is entered, you will not see this screen again. This takes us to the Project Manager screen after we accept the tip of the day.	 ***License Keys** are provided by the internet registration portal or your dealer.* *Please contact your dealer for information on **License Keys** and how to register your new software.*
3	In the Project Manager screen: Since this is a new installation, we only see the sample project that comes included with Layout. We will create a new project. • Tap on the **New Project** button. This takes us to the Create New Project screen.	

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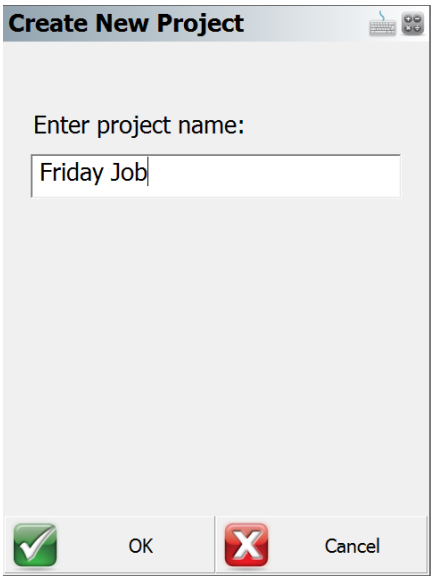
Step	Action	Display
4	In the Create New Project screen: • Enter a name for your new project. In this example, we are calling the project "*Friday Job*". You should enter a more appropriate name. **Looking for a keyboard?** Try double tapping in the name field. • Press the **OK** button when finished. This opens the Unit Settings screen.	

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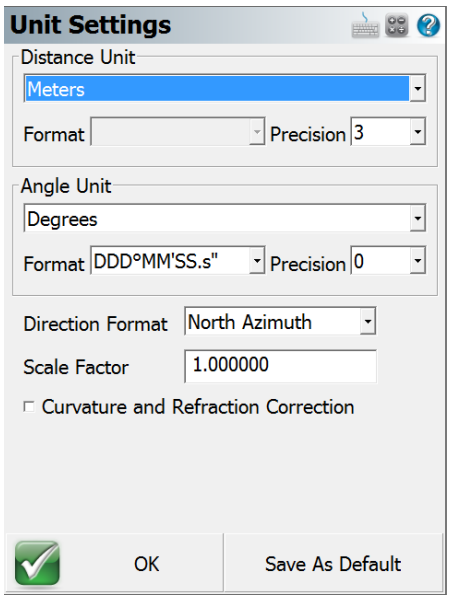
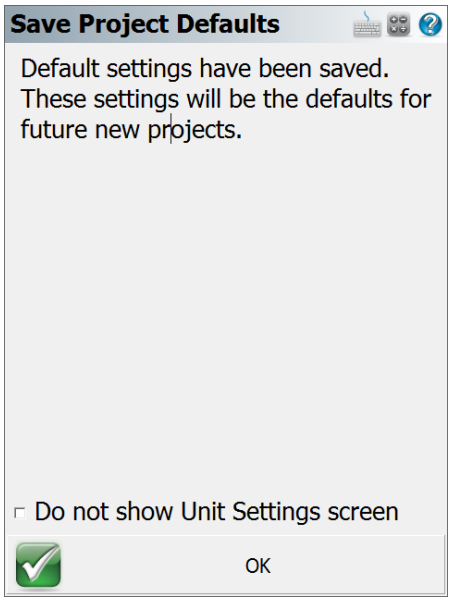
Step	Action	Display
5	In the Unit Settings screen: • Select which units you wish to use. **Important Note**: Once this has been set, you cannot change this project's units again. In this example we will use metric units. Since we typically prefer to work in these same units, we will press the **Save As Default** button. This will make whatever we select here the future default unit setting. • Press the **Save As Default** button. This takes us to the Save Project Defaults screen.	
6	In the Save Project Defaults screen: • Place a check mark in the **Do not show Unit Settings screen again.** check box if you typically always use the same units. This will save you a button press for future new projects. In this example we will not put a check mark in this box. • Press the **OK** button. This takes us to the Main Menu screen.	

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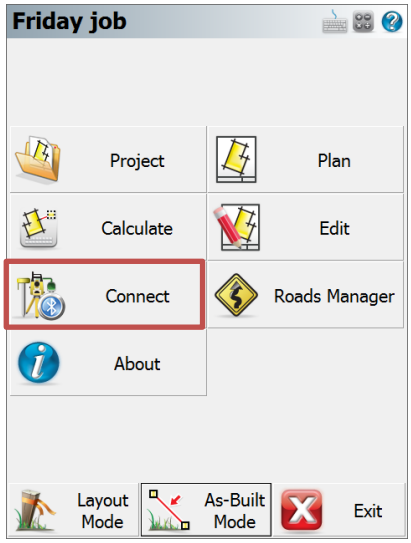
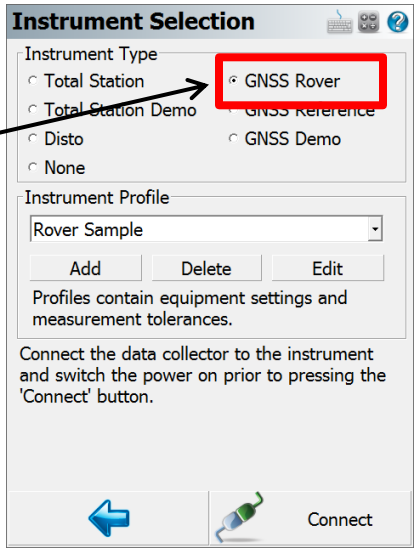
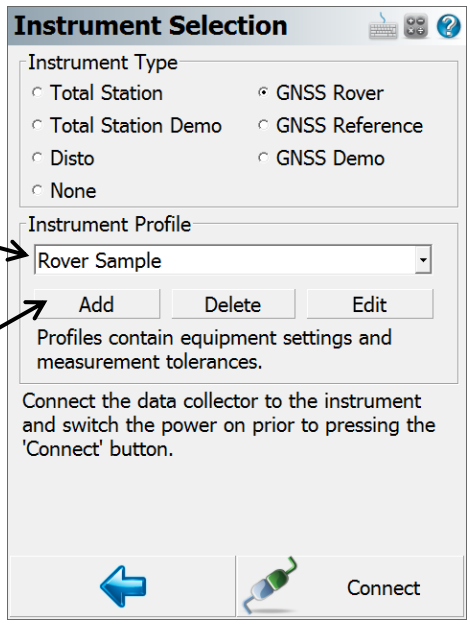
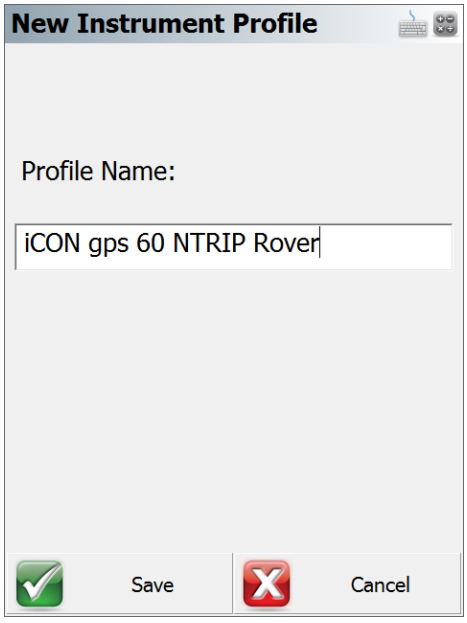
Step	Action	Display
7	In the Main Menu screen: We now want to connect to our instrument. • Press the **Connect** button. This takes us to the Instrument Selection screen.	
8	In the Instrument Selection screen: • Tap on the **GNSS Rover** radio button. **Note**: This is the screen where you can create new instrument profiles, delete existing profiles, or select previously created profiles. Instrument profiles are used to save your particular instrument's settings so that you don't have to remember them or have to set them each time you create a new project or select an instrument to use. This step continues on the following screen.	

Continued on the following page

Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
8	This step continues from the previous page: • Notice the **Instrument Profile** field is now active. • Press the **Add** button. This takes us to the New Instrument Profile screen.	
9	In the New Instrument Profile screen: Enter a name for your instrument profile in the **Profile Name** field. In this example, we will call it *iCON gps 60 NTRIP Rover*. • Press the **Save** button. This saves the profile name and returns us to the Instrument Selection screen.	

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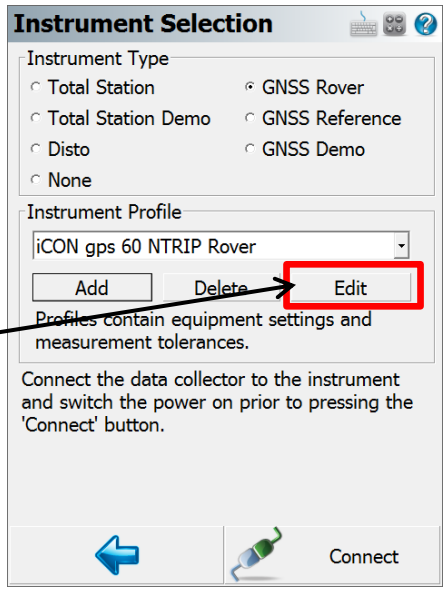
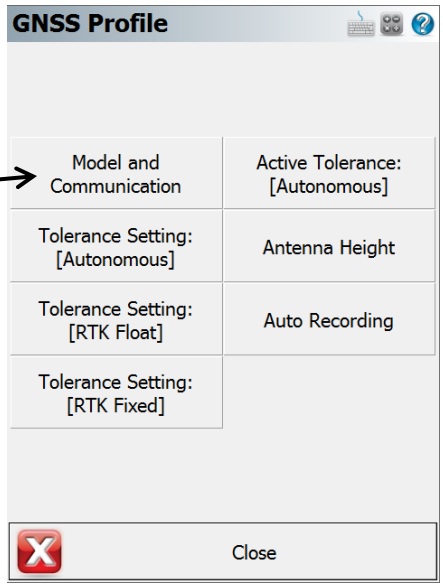
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
10	In the Instrument Selection screen: With your newly created instrument profile name in the **Instrument Profile** field, • Press the **Edit** button. This takes us to the GNSS Profile screen.	
11	In the GNSS Profile screen: • Tap on the **Model and Communication** button. • Ensure that your receiver is turned on. This takes us to the Model and Communication screen.	

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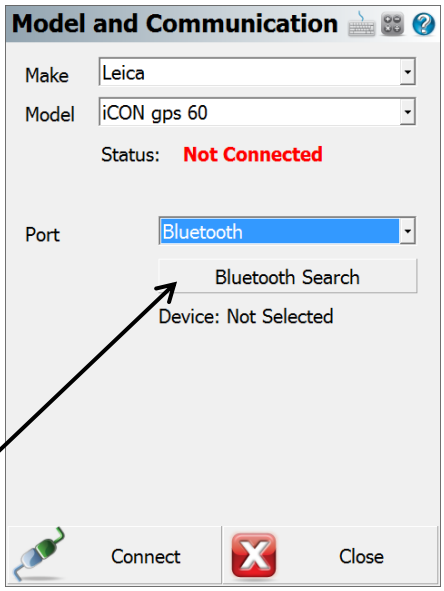
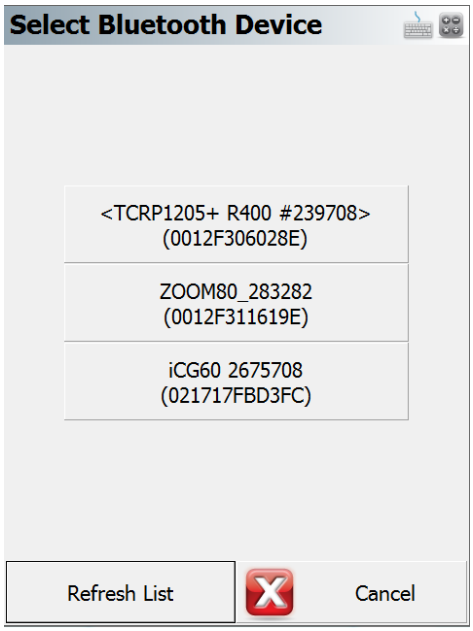
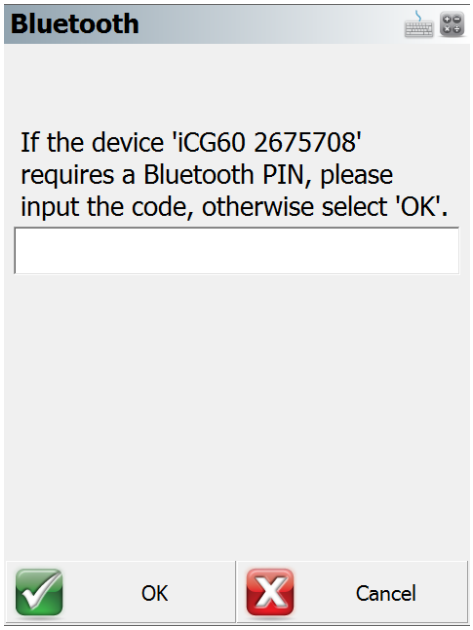
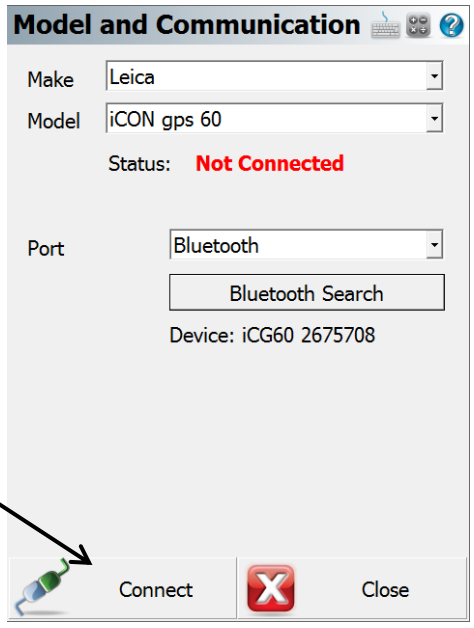
Step	Action	Display
12	In the Model and Communication screen: • Ensure that the **Make** field has **Leica** selected. • Ensure that the **Model** field has **iCON gps 60** selected. • Ensure that the **Port** field is set to ***Bluetooth***. • Press the **Bluetooth Search** button. This takes us to the Select Bluetooth Device screen.	 **Note**: Although we are using Bluetooth to communicate between our data collector and receiver, you could also use a serial cable. Typically COM1 is the port to select when using a cable. But in this example, we will use Bluetooth. Bluetooth is convenient as there are no cables to deal with.

Continued on the following page

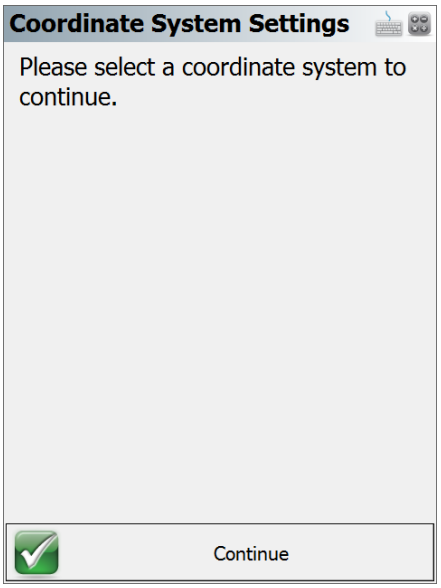
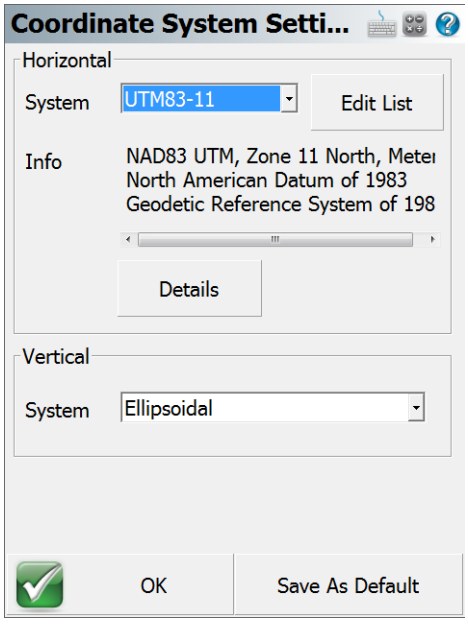
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
13	In the Select Bluetooth Device screen: We see all of the Bluetooth devices that your data collector has found. If you do not see your GNSS receiver in the list, press the **Refresh List** button and another search will be performed. • Tap on your GNSS receiver's button. In this example, our receiver is named ***iCG60 2675708*** (the receiver's serial nuber). This takes us to the Bluetooth screen.	 **Note**: Don't be alarmed if your screen does not have the same devices listed as in the image above.

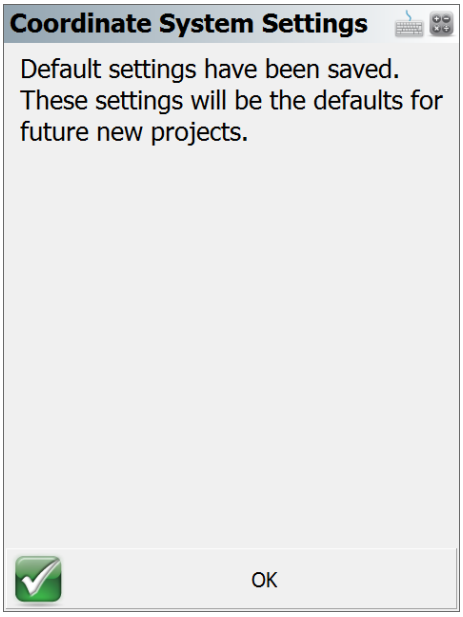
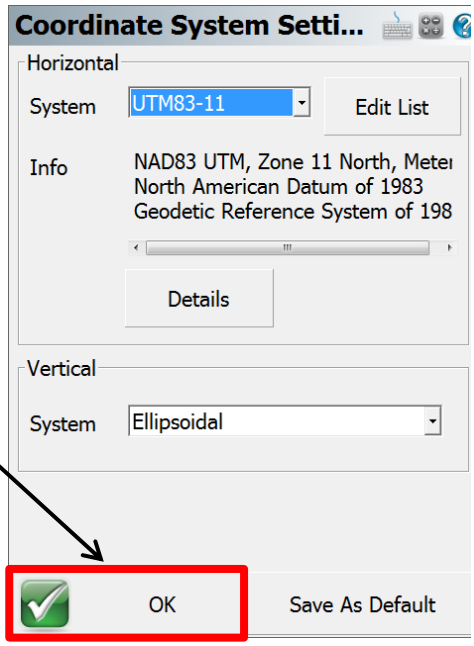
Continued on the following page

Step	Action	Display
14	In the Bluetooth screen: • Enter your receiver's Bluetooth PIN (if it has one). • Press the **OK** button when done. **Note**: Your receiver may not have a Bluetooth PIN. You may want to leave this field blank and press the **OK** button. If you connect then you know a PIN was not required. This returns us to the Model and Communication screen.	
15	In the Model and Communication screen: We now see the correct settings for our receiver. • Tap on the **Connect** button This takes us to the Coordinate System Settings screen.	

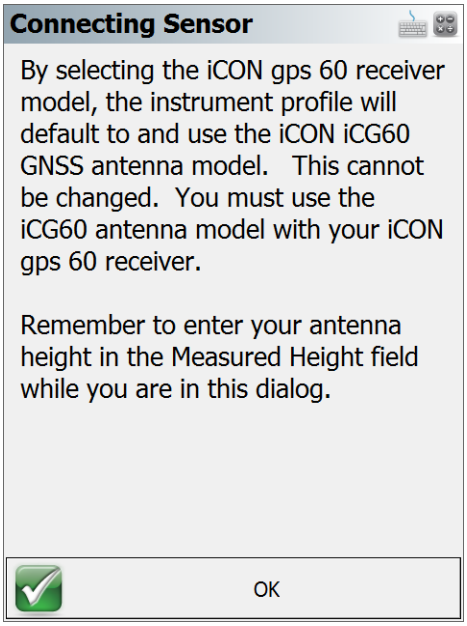
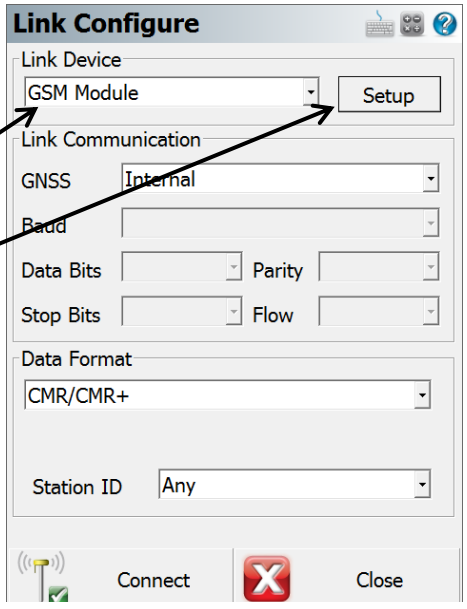
Continued on the following page

Step	Action	Display
16	We are prompted to select a coordinate system. **Important Note**: You **must** have a coordinate system selected if you wish to work with GPS. **Note:** Layout now comes with a new **Coordinate System Editor**. This was introduced in version 6.0.0. To learn more about the new coordinate system editor, please review the MicroSurvey Technical Guide titled ***MicroSurvey Layout' New Coordinate System Editor***. • Tap on the **Continue** button. This takes us to the Coordinate System Settings screen.	
17	In the Coordinate System Settings screen: • Select the coordinate system you wish to work in. In this example we will be selecting the **UTM83-11 North** zone coordinate system with ***no geoid*** model. Since we will be typically working in this coordinate system, we will save it as a default. • Press the **Save As Default** button. This takes us to the Coordinate System Settings screen.	

Continued on the following page

Step	Action	Display
18	In the Coordinate System Settings screen: • Tap on the **OK** button. This takes us back to the Coordinate System Settings screen.	
19	In the Coordinate System Settings screen: • Tap on the **OK** button. This takes us to the Connecting Sensor screen.	

Continued on the following page

Step	Action	Display
20	In the Connecting Sensor screen: This is a reminder message that after completing the connection procedure, you must confirm your Antenna Settings before taking measurements. A user-defined antenna model with this receiver can not be used. Note: This dialog will only appear once after the profile has been created. After that this message is bypassed and will not be displayed.	
21	In the Link Configure screen: • Select ***GSM Module*** in the **Link Device** field. • Press the **Setup** button. This takes you to the Mobile Settings screen.	

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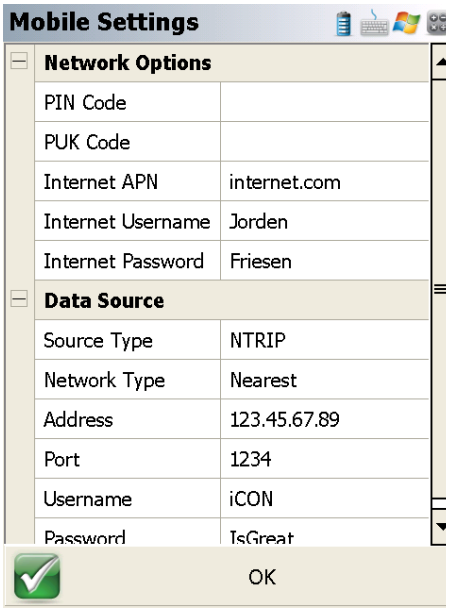
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Network vs. NTRIP

In the **Source Type** field, you have a choice between ***NTRIP*** or ***Network***. [**Note**: You must tap on the field to activate the context menu to see the choices.]
When using a data provider that uses an NTRIP connection, select **NTRIP**. If the data provider does not use NTRIP, then select **Network**. You should confirm with your data provider if they are using NTRIP or not.

Step	Action	Display
22	In the Mobile Settings screen: • Enter your Internet provider's Access Point Name in the **Internet APN** field. In this example it is called *internet.com*. • Enter your **Internet Username** and **Password** in their respective fields. • Use the **Source Type** field to select your data source type. In this example we will be using an **NTRIP** connetion. This step continues on the following page.	

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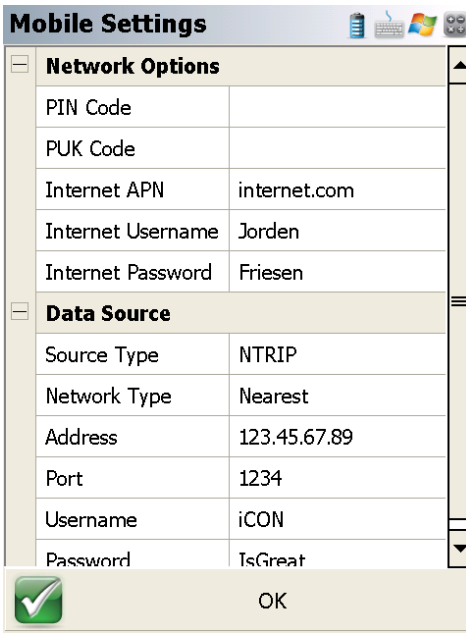
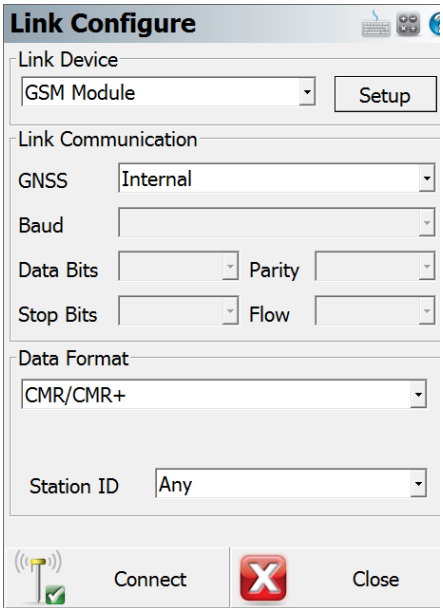
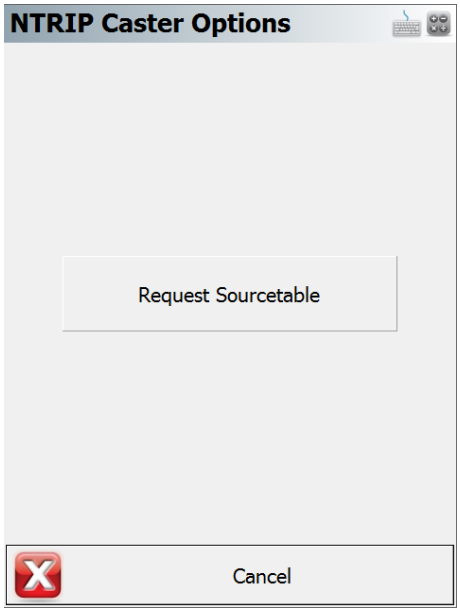
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
22	This step continues from the previous page: • Select the correct network type that you are connecting to in the **Network Type** field. Your data provider can tell you what network type they are using. **Important Note: Selecting *None* will not work.** In this example we will select *Nearest* as our network type. • Enter the IP address of your GNSS data correction source, TCP/IP port, user name, and password in the appropriate fields. • Press the **OK** button when finished. This returns us to the Link Configure screen.	 **PIN** and **PUK** codes are used to protect your cell phone from unauthorized use. In this example we are leaving them blank. **Important Note**: The above settings are space fillers and will not work with any Internet provider.

Continued on the following page

Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
23	In the Link Configure screen: It is not necessary to select a data format in this screen because Layout will always use whatever format that is associated with the selected mount point. • Set the **Station ID** field to **Any**. • Press the **Connect** button. Once Layout has connected with your Network GNSS data service, you will be taken to the NTRIP Caster Options screen.	
24	In the NTRIP Caster Options screen: Since this is the first time we have connected to this service, we are only presented with a **Request Sourcetable** button. If we had done this before then the last mount point that we had selected would also be available in this list. • Tap on the **Request Sourcetable** button. This takes us to the NTRIP Sourcetable screen.	

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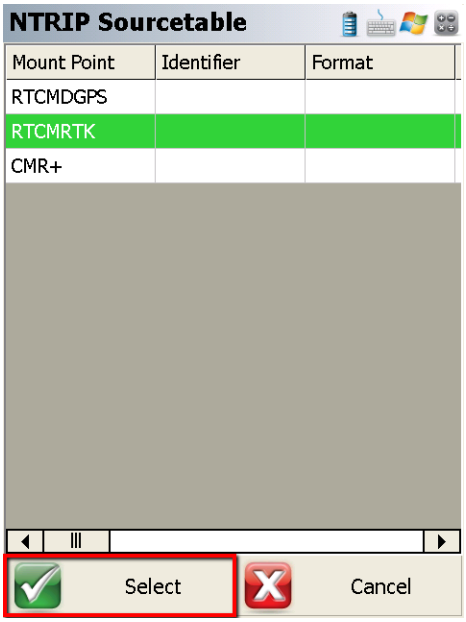
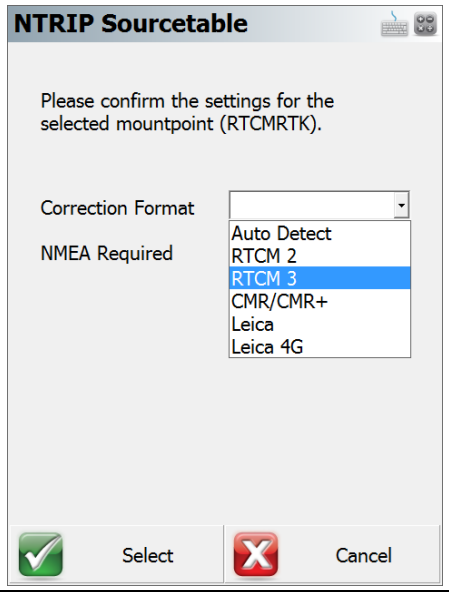
Step	Action	Display
25	In the NTRIP Sourcetable screen: Here we are presented with a list of all of the mountpoints our GNSS network data provider is offering. Because we haven't set up our Sourcetable yet, the list will be empty. Highlight the RTCMRTK Mount Point column and press the **Select** button. Note: The Mount Point can be renamed to what ever the user wishes, but by default Layout has named them as shown. This will open up the NTRIP Sourcetable dialog.	
26	In the NTRIP Sourcetable dialog: Select the message type that is used by the Mount Point in the **Corection Format** field. In this exercise we will pick *RTCM 3* for the correction format. This step continues on the next page.	

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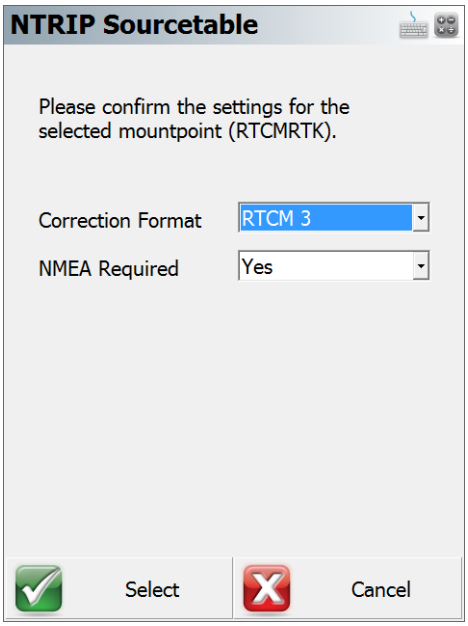
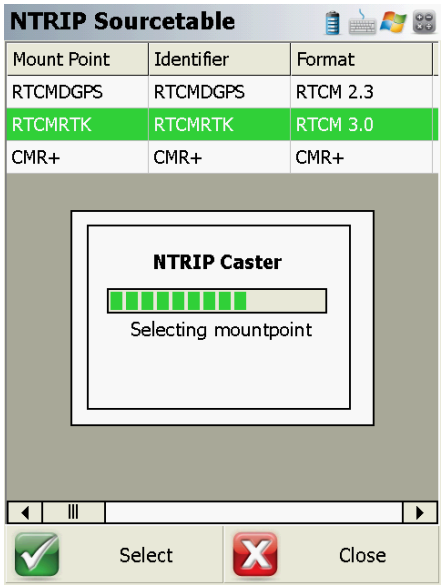
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Step	Action	Display
26	Continuing from the previous page, In the NTRIP Sourcetable screen: After selecting the correction format, choose wether or not **NMEA** is required. Again in this example we will choose *YES*. This takes us back to the NTRIP Sourcetable screen.	
27	In the NTRIP Sourcetable screen: • Select the mount point you wish to use by tapping on it. In this example we are selecting the ***RTCM 3.0 RTK*** mountpoint. • Press the **Select** button. **Note**: Don't be alarmed if your mount point list does not match the screen on the right. Your provider probably offers different services. You are now taken to the MapView screen.	

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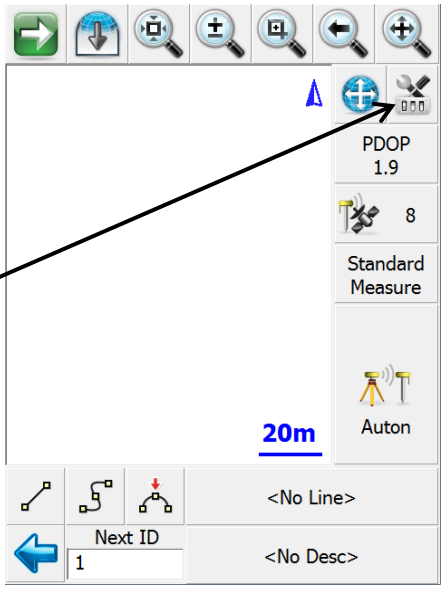
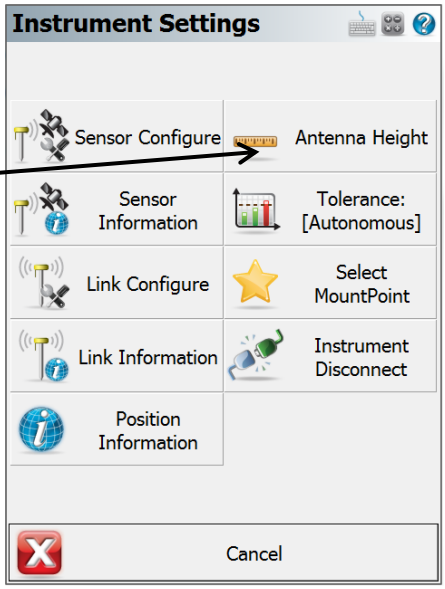
Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Correct Antenna

It is wise to ensure that you have the correct antenna height entered and proper antenna model selected before measuring with GPS.

Step	Action	Display
28	In the MapView screen: In this example we will enter a height of *2 metres* since we are using a fixed 2-metre pole. • Tap on the **Instrument Settings**  button. This takes us to the Instrument Settings screen.	
29	In the Instrument Settings screen: • Tap on the **Antenna Height** button. This takes us to the Antenna Height dialog.	

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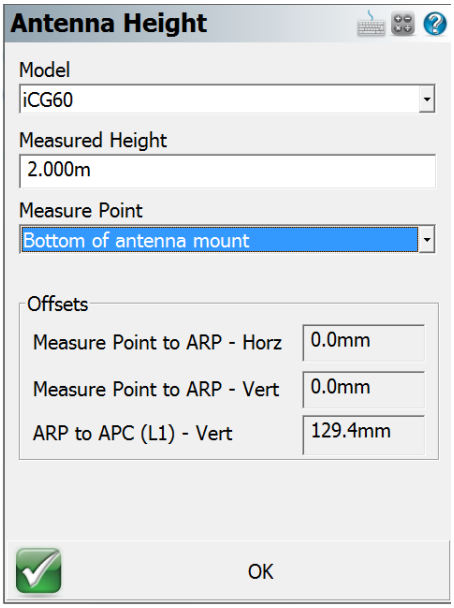
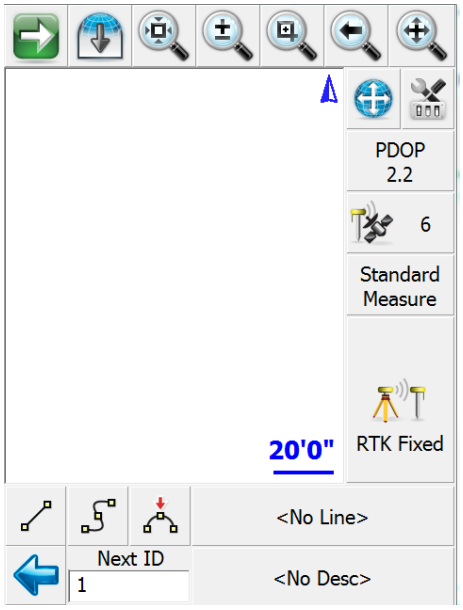
Step	Action	Display
30	In the Antenna Height dialog: • Select the antenna you wish to use in the **Model** field. In this example we are using an **iCG60**. • Enter the height of instrument in the **Measured Height** field. In this example we are using a fixed 2-metre pole. • Press the **OK** button when finished. You are now returned to the MapView screen.	
31	In the MapView screen: As soon as you see the Position Status change to "RTK Fixed" you are ready to start measuring.	

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Creating an iCON gps 60 GNSS GSM Network Rover Profile, *continued*

Congratulations

You have successfully created a GNSS network rover profile.

You then made a connection to your GNSS receiver via Bluetooth.

From there you connected to your GNSS network correction provider and started receiving network data.

You then entered the correct antenna height and selected the correct antenna model and are ready to start measuring.

Remember, Layout will preserve these settings in your instrument profile. You only have to create this profile once. In other words, you don't have to follow these steps each and every time you want to survey using the GNSS receiver and the Internet.

Glossary

GNSS – Global Positioning System
ISP – Internet Service Provider
PIN – Personal Identification Number
PUK – PIN Unlocked Key
GSM – Global System for Mobile Communications
CDMA – Code Division Multiple Access
ISP - Internet Service Provider
NTRIP – Networked Transport of RTCM via Internet Protocol
NTRIP Caster – an HTTP server that accepts request-messages on a single port and then decides where there is streaming data to receive or to send. The caster offers a list of mountpoints that is called a source list or source table.
HTTP: Hypertext Transfer Protocol
SIM - Subscriber Identity Module
RTCM - Radio Technical Commision for Martitime
RTK – Real Time Kinematic